CLAIMS

1. A method of scanning a mirror that provides an image of a portion of the Earth to a multiband focal plane array of optical detectors in an imager, the method comprising the steps:

positioning the mirror relative to a first axis;

scanning the mirror about a second axis; and

repositioning the mirror relative to the first axis while scanning the mirror about the second axis.

2. The method of claim 1, further comprising the step of:

selecting a desired location on the Earth to be imaged by the multiband focal plane array of optical detectors and providing a first axis control signal indicative of the position for the mirror relative to the first axis in order to image the desired location on the Earth.

3. The method of claim 1, wherein the first and second axes are perpendicular to a reflective plane of the mirror that provides the image to the multiband focal plane array of optical detectors in an imager.

4. The method of claim 2, wherein when the mirror is positioned about the first axis to set the scan elevation and the mirror scans in azimuth as it moves about the second axis.

5. The method of claim 2, wherein when the mirror is positioned about the first axis to set the scan azimuth and the mirror scans in elevation as it moves about the second axis.

6. A method of controlling the position of a planar mirror in an orbital weather imaging system to provide a reflected image to a multiband focal plane array of optical detectors in an imager, the method comprising the steps of:

positioning the mirror relative to a first axis;

positioning the mirror relative to a second axis; and

scanning the mirror relative to the first axis while repositioning the mirror relative to the second axis as a function of the mirror position relative to the first axis, to reduce registration and coregistration errors provided by the multiband focal plane array of optical detectors.

7. An orbital weather imaging system that images a selected portion of the Earth onto a multi-spectral-band array of optical detectors on a focal plane that is displaced in angle from the plane of the scene, while compensating for the rotation of the scene's image on the focal plane with respect to the actual scene to maintain the registration of pixel location in each image frame, and maintain the coregistration among the spectral bands in the focal plane array during the scan of the selected portion of the Earth, the system comprising:

a focal plane array having a plurality of imaging bands;

a mirror mounted to scan in elevation and in azimuth and provide a reflective image of

the Earth scene onto said focal plane array; and

a controller that commands said mirror to a starting elevation position and to a starting azimuth position, and then scans said mirror in elevation while also scanning said mirror in azimuth.

8. The orbital weather imaging system of claim 7, wherein said controller comprises:

a mirror azimuth position sensor that provides an azimuth position signal;

a mirror elevation position sensor that provides an elevation position signal;

an electronic controller responsive to said azimuth position signal, said elevation position signal and a signal indicative of the area to be imaged, to compute an azimuth command signal and an elevation command signal;

a first actuator responsive to said azimuth command signal to position said mirror in azimuth; and

a second actuator responsive to said elevation command signal to position said mirror in elevation.

9. The orbital weather imaging system of claim 8, wherein said focal plane array includes a visible imaging band and a plurality of infrared imaging bands.

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